

UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF WASHINGTON AT SEATTLE

TOLT TECHNOLOGIES LLC., a Washington
limited liability company,

Plaintiff,

v.

HOMEBRACE GERMANY GMBH, a company
organized and existing under the laws of
Germany

Defendant.

Case No.

**COMPLAINT FOR PATENT
INFRINGEMENT**

JURY TRIAL DEMANDED

Plaintiff Tolt Technologies LLC, by and through undersigned counsel, hereby submits
the following Complaint.

NATURE OF THE CASE

1. This is an action for patent infringement arising under the Patent Laws of the
United States, 35 U.S.C. § 1 et seq. Plaintiff Tolt Technologies, LLC (“Tolt”) seeks damages
and injunctive relief for the infringement of United States Patent No. 12,226,330 (the “’330
Patent”) and United States Patent No. 12,204,687 (the “’687 Patent”) by HomeBrace Germany
GmbH (“HomeBrace”).

PARTIES

2. Plaintiff Tolt Technologies LLC (“Plaintiff” or “Tolt”) is a Washington limited liability company with a principal place of business as 19520 Mountain View Road, N.E., Duvall, Washington, 98019.

3. Defendant HomeBrace Germany GmbH (“HomeBrace”) is a company organized under the laws of Germany with its principal place of business in Germany. HomeBrace does business in the United States, including in this judicial district, by advertising, offering for sale, selling, or importing products including the MyEcc Prop.

JURISDICTION AND VENUE

4. This Court has subject matter jurisdiction under 28 U.S.C. §§ 1331 and 1338(a) because this action arises under the patent laws of the United States, Title 35 of the United States Code.

5. Venue is proper in this judicial district pursuant to 28 U.S.C. § 1400(b) and 28 U.S.C. § 1391(c)(3) because HomeBrace is a foreign corporation that does not reside in the United States and does not have a regular and established place of business in the United States.

6. This Court has personal jurisdiction over Defendant HomeBrace pursuant to Fed. R. Civ. P. 4(k)(2), because this action arises under federal patent law, HomeBrace is not subject to jurisdiction in any state’s courts of general jurisdiction, and HomeBrace has sufficient contacts with the United States as a whole such that exercising jurisdiction is consistent with due process and the Constitution of the United States.

7. HomeBrace has purposefully directed its infringing activities toward the United States by advertising, offering for sale, or selling infringing products, including the “MyEcc Prop” and related accessories, to customers in the United States, including through the use of

1 websites accessible to U.S. residents and through distribution partners based in the United
2 States.

3 8. HomeBrace operates a public-facing LinkedIn account targeting an international
4 audience, including the United States. As recently as May and June 2025, HomeBrace published
5 promotional content on LinkedIn highlighting the infringing MyEcc Prop product in English
6 and soliciting interest from a global audience, which includes the United States.

7 **FACTS**

8 9. Jay Beavers is the named inventor of the '330 and '687 Patents. He developed
9 the patented technologies to enable users—particularly individuals with physical disabilities—
10 to control powered devices and adjust seating posture using eye gaze input. These inventions
11 have revolutionized assistive technology by providing more intuitive, reliable, and safe control
12 interfaces for powered wheelchairs and similar devices.

13 14. The '330 Patent issued on February 18, 2025, and the '687 Patent issued on
14 January 21, 2025. True and correct copies of both patents are attached as Exhibits A and B,
15 respectively. Together, the '330 and '687 patents represent pioneering advances in hands-free
16 control of powered mobility and positioning systems through gaze-based technology.

17 11. The patents have been exclusively licensed to Plaintiff Tolt Technologies LLC,
18 which was formed and is operated by Tracy Beavers to bring these innovations to market.

19 12. The '330 Patent, entitled “Systems, Methods, and Techniques for Eye Gaze
20 Control of Seat and Bed Positioning,” describes a groundbreaking system that enables users
21 with severe motor impairments to control the position of a powered wheelchair or bed using
22 only their eye gaze. The patented Eye Gaze Posture Control System (EGPCS) integrates an eye
23 gaze sensor, actuator controllers, and a posture control application, allowing users to initiate
24
25

1 and control translational and rotational motion of powered components without relying on
2 physical movement. The innovation lies in using gaze vector tracking to detect intent to activate
3 specific motion targets within a user interface, replacing traditional physical or virtual input
4 methods. This technology allows users with conditions such as ALS or muscular dystrophy to
5 independently adjust their position, relieving pressure and enhancing comfort and safety.

6 13. Claim 1 of the '330 patent claims a “microcontroller implemented method in a
7 powered device having a power controlled seat or bed adjustable via actuators, comprising” the
8 following elements:
9

- 10 a. presenting a first user interface for selection of a posture axis using eye
11 gaze input, the user interface displaying a plurality of selectable virtual
12 user interface controls each corresponding to an adjustable axis;
13 b. receiving, by means of an eye gaze camera and logic configured to detect
14 an occupant's gaze for a determined period of time on a portion of the
15 presented first interface that corresponds to a selected one of the plurality
16 of virtual user interface controls, a selection of an adjustable axis;
17 c. presenting a second user interface distinct from the first user interface
18 for selection of an adjustment amount using eye gaze input, the selected
19 adjustment amount to be applied to the selected adjustable axis to cause
20 an adjustment to the power controlled seat or bed;
21 d. receiving, by means of the eye gaze camera and logic configured to
22 detect the occupant's second gaze for a determined period of time on a
23
24
25

1 portion of the second presented user interface that corresponds to an
2 adjustment amount, a selection of an adjustment amount;

3 e. forwarding the selected adjustable axis and the selected adjustment
4 amount to determine a recommended change and/or overriding values
5 regarding posture of occupant to avoid inadvertent dangers or health
6 issues;

7 f. receiving the recommended change and/or overriding values;

8 g. determining and modifying the selected adjustable axis and the selected
9 adjustment amount based upon the received recommended change
10 and/or overriding values; and
11

12 h. responsive solely to eye gaze input received from the occupant via the
13 first and the second user interfaces and without the occupant typing
14 commands or using oral input, automatically causing actuators to change
15 the modified selected adjustable axis by the modified selected
16 adjustment amount, thereby causing a change to posture of the occupant
17 without the occupant typing commands or using oral input.
18

19 14. The '687 Patent, entitled "Microcontroller-Implemented Method for Eye Gaze-
20 Based Actuation Control," builds on this innovation by describing a method that interprets gaze
21 interactions with visual targets as actionable control signals to control position or movement of
22 the powered device. It details the use of an attention area—a predefined region within a user's
23 visual field containing selectable targets—to determine user intent based on the intersection of
24 a gaze vector and the visual target for a determined time period. Upon activation, the system
25

1 triggers movement of an actuator corresponding to the target; conversely, when the gaze leaves
2 the attention area or disappears, the system interprets this as intent to deactivate. This method
3 eliminates the need for external switches or voice commands, providing users with a seamless,
4 intuitive interface to control their seating environment.

5 15. Claim 1 of the '687 patent claims a “microcontroller implemented method in a
6 powered device for enabling a user to control, using eye gaze interaction, one or more actuators
7 configured to modify a position or movement of one or more components of the powered
8 device, the powered device having an associated eye gaze sensor, the method comprising” the
9 following elements:
10

- 11 a. presenting a plurality of visual targets positioned in a designated
12 attention area of a display or projection, the attention area comprising a
13 subset of the field of view of the user;
- 14 b. receiving a stream of data points from the eye gaze sensor, the data points
15 including detection of the presence of eyes and coordinate information
16 regarding a visual focus of the eyes within the field of view of the user;
- 17 c. determining from the stream of data points an indication of the presence
18 of eyes, and when the presence of eyes are indicated, a current eye gaze
19 vector and an indication of whether the current eye gaze vector intersects
20 the attention area;
- 21 d. when it is determined that the current eye gaze vector intersects the
22 attention area, determining whether the eye gaze vector intersects one of
23 the plurality of visual targets presented within the attention area;
- 24
- 25

- 1 e. when it is determined that the eye gaze vector intersects one of the
2 plurality of visual targets, determining, based upon expiration of an
3 activation delay timer, that the user intends to activate the intersected
4 visual target or maintain activation of the intersected visual target; and
5 causing translational or rotational movement of an actuator device
6 associated with the intersected visual target, thereby causing positional
7 changes or movement to the powered device;
8
9 f. when it is determined that the presence of eyes are not indicated or when
10 it is determined that the current eye gaze vector does not intersect the
11 attention area, determining, based upon expiration of a deactivation
12 delay timer that the user intends to deactivate the most recently activated
13 visual target; and
14
15 g. causing cessation of movement of an actuator device associated with a
16 most recently activated visual target.

17 16. HomeBrace did not develop the patented technologies as set forth in the claims
18 of the '330 and '687 patents. Without authorization or license, HomeBrace has adopted the
19 innovations claimed in the '330 and '687 patents into at least its MyEcc Prop product, which it
20 advertises as enabling powered wheelchair operation and posture adjustment via eye gaze input.

21 17. HomeBrace's acts of infringement are willful. It knew or should have known
22 that its conduct constituted infringement of at least claim 1 of the '330 patent and at least claim
23 1 of the '687 patent, yet it continues to market and offer the Accused Products in the United
24 States, including in this District.
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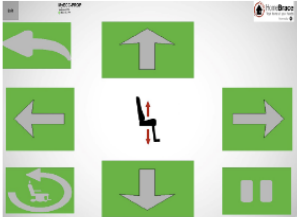
CAUSES OF ACTION


Count I – Infringement of U.S. Patent No. 12,226,330

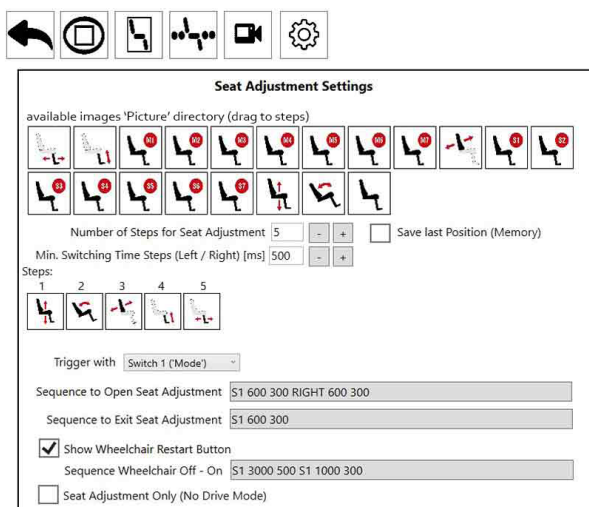
18. Plaintiff realleges and incorporates by reference the allegations set forth in the foregoing paragraphs.

19. The MyEcc Prop product as sold, offered for sale, or used by HomeBrace within the United States, meets each element of claim 1 of the '330 patent as recited above as set forth in the following claim chart:

Claim No. [subpart]	Element Language	Where the element can be found in the MyEcc Prop Product
1[pre]	A microcontroller implemented method in a powered device having a power controlled seat or bed adjustable via actuators, comprising:	<p>The MyEcc Prop product ("MyEcc Prop") of HomeBrace (HB) describes that it can be used to "Drive your power wheelchair safely and adjust your sitting position with just your eyes." See https://homebrace.com/en/myecc.php.</p> <p>The MyEcc Prop system is a powered device that interfaces with a powered wheelchair. It incorporates a microcontroller-based architecture. It allows seat and posture adjustment via actuators. These adjustments are controlled through eye gaze inputs interpreted by the system's onboard software.</p> <p>"Existing eye control systems (e.g.ALEA, Tobii) can be used for eye control. This also makes it possible to control the existing seat functions of the wheelchair. If attachments such as robot arms are available, these can also be controlled." MyEcc_Prop Manual ("Manual"), p. 5, available for download at https://homebrace.com/en/pdf/MyEccPupil_Manual.pdf. See also, Manual at Section 11, p. 8-9.</p> <p>The MyEcc Prop software is distributed on a USB stick and is downloaded to the microcontroller (via PC/tablet hard drive). See Manual at p. 13, Section 16.) The software application controls the wheelchair through required power electronics such as those provided by an OMNI1 or OMNI2. Manual at p. 13, Section 15.)</p>

1[a]	presenting a first user interface for selection of a posture axis using eye gaze input, the user interface displaying a plurality of selectable virtual user interface controls each corresponding to an adjustable axis;	<p>The system presents a first user interface with selectable virtual controls (arrows) on the display for posture axis selection.</p> <p>Section 19 of the Manual shows the left/right arrow interface for selecting posture adjustment axes:</p> <p>19-02 Seat adjustment</p>  <p>Manual, p. 19. See also, Fig. 19-07 to set axis options. These controls are intended to be selected via gaze, as indicated by the Manual (and video demonstrations available at https://homebrace.com/en/myecc.php).</p>
1[b]	receiving, by means of an eye gaze camera and logic configured to detect an occupant's gaze for a determined period of time on a portion of the presented first interface that corresponds to a selected one of the plurality of virtual user interface controls, a selection of an adjustable axis	<p>The MyEcc Prop uses existing eye tracking cameras (e.g., those made by Tobii) to detect gaze fixation on user interface elements. See Manual at p. 5 (“Existing eye control systems (e.g. ALEA, Tobii) can be used for eye control.”) The system is configured to register a selection after a determined hold focus time, evidencing receipt of a selected axis via gaze input. See Manual at p.29 (“Hold focus until activation [ms]”).</p>

1[c]	presenting a second user interface distinct from the first user interface for selection of an adjustment amount using eye gaze input, the selected adjustment amount to be applied to the selected adjustable axis to cause an adjustment to the power controlled seat or bed;	<p>After selecting a posture axis, the interface switches to a second UI showing up/down arrows to choose an adjustment amount. This secondary interface is distinct from the axis-selection screen and is used to define the magnitude or direction of adjustment. See Manual, Section 19, p. 19-20, 24, and Fig. 19-2.</p> 
1[d]	receiving, by means of the eye gaze camera and logic configured to detect the occupant's second gaze for a determined period of time on a portion of the second presented user interface that corresponds to an adjustment amount, a selection of an adjustment amount;	The gaze-tracking system again records fixations on the up/down arrows, confirming selection of an adjustment amount (referred to as a "step"). See Manual at Section 19-07, p. 24-26 (describing customizable delay and step timers, "hold duration," confirming that selection is based on maintained gaze for a determined period of time).
1[e]	forwarding the selected adjustable axis and the selected adjustment amount to determine a recommended	The selected axis and adjustment are forwarded through the MyEcc Prop system, which includes a control box and software that interacts with motor controllers such as OMNI2. See Manual at p. 11, Section 13 ("The user must always have the wheelchair display in focus Installing a second display (e.g. the OMNI2 display) at eye control level ... This enables safe switching between the different modes."). These controllers include software logic to

	change and/or overriding values regarding posture of occupant to avoid inadvertent dangers or health issues	reject unsafe movements, which satisfies the “recommended change and/or overriding values” clause of this element. See OMNI2 User Guide, available for download at https://www.magicmobility.com.au/wp-content/uploads/Omni-2-User-Guide.pdf (OMNI2 Manual”).
1[f]	receiving the recommended change and/or overriding values	The OMNI2 controller or similar power electronics receive override instructions and logic values to verify safe actuation. The MyEcc Prop Box facilitates the data handoff from the gaze system (e.g., Tobii) to the actuator control network.
1[g]	determining and modifying the selected adjustable axis and the selected adjustment amount based upon the received recommended change and/or overriding values; and	Based on information received from the OMNI2 system and/or built-in safety logic, the control signal may be modified before execution. The OMNI2 controller includes safety features. As well “[i]f for any reason (Windows problems, programme crash, etc.), the application fails to send activation impulses to the relays in the control box, all the relays are IMMEDIATELY switched off, stopping the movement or active adjustment.” See Manual at p. 31.
1[h]	responsive solely to eye gaze input received from the occupant via the first and the second user interfaces and without the occupant typing commands or using oral input, automatically causing actuators to change the modified selected adjustable axis by the modified selected adjustment amount, thereby	<p>Ultimately, by the MyEcc Prop Box communicating with the controller that activates the actuators (e.g., OMNI2), the MyEcc Prop system causes the selected actuator to move—tilting, reclining, or adjusting a seat axis—based solely on eye gaze input.</p> 

1	causing a change to posture of the occupant without the occupant typing commands or using oral input.	See Manual at p. 24-25 (Section 19-07 emphasizing programmed settings for seat adjustment steps). See also OMNI2 Manual, Sections 2.9.9, 5.4-5.5 (e.g., “programmable range is between 0.25s and 5.0s in steps of 0.25s”).
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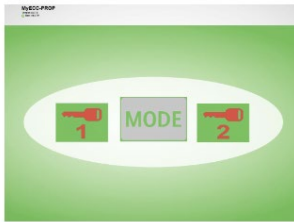
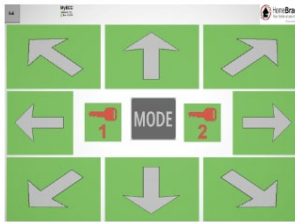
20. HomeBrace has directly and/or indirectly infringed at least claim 1 of the '330 Patent in violation of 35 U.S.C. § 271.

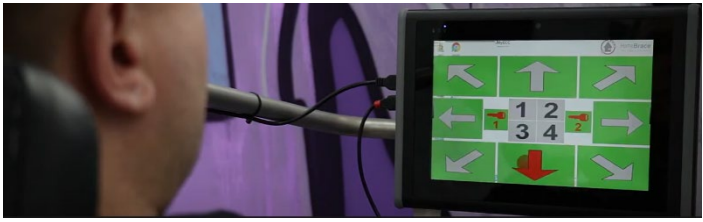

Count II – Infringement of U.S. Patent No. 12,204,687

21. Plaintiff realleges and incorporates by reference the allegations set forth in the foregoing paragraphs.

22. The MyEcc Prop product as sold, offered for sale, or used by HomeBrace within the United States, meets each element of claim 1 of the '687 patent as recited above as set forth in the following claim chart:

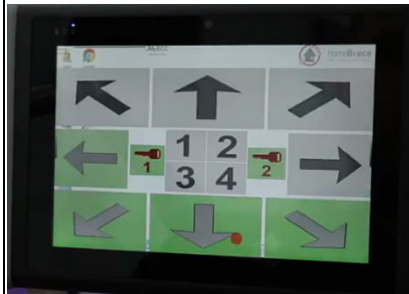
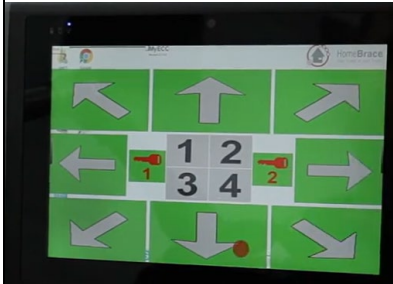
Claim No. [subpart]	Element Language	Where the element can be found in the MyEcc Prop Product
1[pre]	A microcontroller implemented method in a powered device for enabling a user to control, using eye gaze interaction, one or more actuators configured to modify a position or movement of one or more components of the powered device, the powered device having an associated eye	<p>The MyEcc Prop product (“MyEcc Prop”) of HomeBrace (HB) describes that it can be used to “Drive your power wheelchair safely and adjust your sitting position with just your eyes.” See https://homebrace.com/en/myecc.php.</p> <p>The MyEcc Prop system is a powered device that interfaces with a powered wheelchair. It incorporates a microcontroller-based architecture. It allows movement of (a user to drive) the wheelchair and change of seat position via actuators. The direction of the movement is controlled through eye gaze inputs interpreted by the system’s onboard software.</p> <p>The MyEcc Prop software is distributed on a USB stick and is downloaded to the microcontroller (via PC/tablet hard drive). See Manual at p. 13, Section 16.) The software application controls the wheelchair through</p>

	gaze sensor, the method comprising:	required power electronics such as those provided by an OMNI1 or OMNI2. Manual at p.13, Section 15.)
1[a]	presenting a plurality of visual targets positioned in a designated attention area of a display or projection, the attention area comprising a subset of the field of view of the user;	<p>In operation, MyEcc Prop shows several targets in the the display/projection area:</p> <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>MyEcc Prop: MyEcc with proportional control</p> </div> <div style="text-align: center;">  <p>MyEcc: MyEcc with switch control</p> </div> </div> <p>depending up the type of control (proportional or switch). Manual at p. 18, Section 19-01 Driving Mode.</p> <p>The attention area is the area on the display that includes the user interface controls that are selectable by the occupant by an eye gaze control system (e.g., the key areas and the arrow areas).</p>
1[b]	receiving a stream of data points from the eye gaze sensor, the data points including detection of the presence of eyes and coordinate information regarding a visual focus of the eyes within the field of view of the user;	<p>“Existing eye control systems (e.g., ALEA, Tobii) can be used for eye control.” Manual, p. 5, Section 03.</p> <p>The MyEcc Prop system continuously receives streamed data about gaze position and eye presence from these eye gaze control systems. <i>See e.g.</i>, Tobii API, available for downloadable at https://www.tobii.com/products/software/applications-and-developer-kits/tobii-pro-sdk.</p>
1[c]	determining from the stream of data points an indication of the presence of eyes, and when the presence of eyes are indicated, a	The MyEcc Prop system then then determines from this data stream a current eye gaze vector and whether it intersects the attention area.

	current eye gaze vector and an indication of whether the current eye gaze vector intersects the attention area;	<p>See YouTube Video showing MyEcc Prop on the HomeBrace website, available at https://homebrace.com/en/myecc.php, https://youtu.be/bQsr-3I_v0o, at Time 2:16 ("Video1").</p> 
1[d]	when it is determined that the current eye gaze vector intersects the attention area, determining whether the eye gaze vector intersects one of the plurality of visual targets presented within the attention area;	<p>Video1 shows that the system determines whether the gaze vector intersects a visual target and which one:</p>  <p>See Video1 at time 2:20. When compared with the screen display at time 2:16, it can be observed that the red dot indicates feedback to the user regarding where the user's gaze is (thus the system is interpreting the streamed eye gaze data). The red dot moves as the user's gaze moves.</p>
1[e]	when it is determined that the eye gaze vector intersects one of the plurality of visual targets, determining, based upon	<p>The red dot moves as the user's gaze moves, and when it rests for a determined period of time on the target (an arrow or key or number), the user interface changes to show in red the users selection of arrow/key/number etc. Compare Video1 at times 2:16 and 2:20.</p>

expiration of an activation delay timer, that the user intends to activate the intersected visual target or maintain activation of the intersected visual target; and causing translational or rotational movement of an actuator device associated with the intersected visual target, thereby causing positional changes or movement to the powered device;

As shown below in a sequence at time 2:31, the red dot is shown to shrink showing visually an activation timer (a count down until selection is effected).



See Video1 at time 2:31.

The MyEcc Prop Manual explains a settings feature that can be set: "Hold focus until activation [ms]: Delay time from focusing on a field with the eye to its activation." Manual at p. 29. This is the 'activation delay timer' as recited. The transcript of the video explains that the wheelchair moves in the direction of the activated arrow. See Video1, translated into English, 2:05-2:20, ("To control the wheelchair only via eye control I look at key 1 then key 2, the arrows turn green and can be controlled. It means every green button can be controlled. The wheelchair moves in the direction.").

Thus, the MyEcc Prop determines based upon an activation delay timer that the user intends to activate the arrow or maintain activation of it and in conjunction

		with the OMNI2 and the MyEcc Prop Box as described earlier, movement of the powered wheelchair is effectuated.
1[f]	when it is determined that the presence of eyes are not indicated or when it is determined that the current eye gaze vector does not intersect the attention area, determining, based upon expiration of a deactivation delay timer that the user intends to deactivate the most recently activated visual target; and	<p>Manual at p. 18, Section 19-01.</p> <p>As shown above: when the “[e]ye focus [is] within the white ellipse: Wheelchair is stopped” and when the eyes are closed or outside of the application window the HB software switches into “inactive mode” after “the programmed time.” Manual at. p. 18 Section 19-01 Driving mode.</p> <p>The MyEcc Prop system also includes a deactivation timer. “Focus timeout (eye closed) [ms]” (a deactivation delay timer) that can be set to control the delay. Manual at p. 29, Section 21. As stated, the Focus timeout (eye closed) is the “[w]aiting time from loss of eye focus (no more eye movements and/or pupil position detectable) until the application is deactivated (-> Stopping the wheelchair).” <i>Id.</i> This deactivation timer thus indicates intention to deactivate the activated visual target.</p>
1[g]	causing cessation of movement of an actuator device associated with a most recently activated visual target.	<p>The “Focus timeout (eye closed) [ms]” timer setting of the MyEcc Prop system causes stopping of the wheelchair when the timer expires. See Manual at p. 29, Section 21.</p> <p>Further, as described in the Manual, “[i]f the eye-camera software stops sending new eye-mouse coordinates for a certain period of time (FOCUSTIMEOUT) (eye focus lost or other eye-camera problems, tablet PC overload), all driving commands or adjustment functions are stopped IMMEDIATELY.” Manual at p. 31, Section 23.</p>

23. HomeBrace has directly and/or indirectly infringed at least claim 1 of the '687 Patent in violation of 35 U.S.C. § 271.

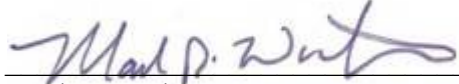
PRAYER FOR RELIEF

1 WHEREFORE, Plaintiff respectfully requests that this Court enter judgment in its
2 favor and grant the following relief:

- 3 A. A judgment that Defendant has infringed the '330 and '687 Patents;
4 B. Preliminary and permanent injunctive relief against further infringement;
5 C. An award of damages adequate to compensate Plaintiff for Defendant's infringement,
6 including enhanced damages for willfulness;
7 D. An award of attorneys' fees and costs under 35 U.S.C. § 285; and
8 E. Such other and further relief as the Court deems just and proper.
9

10 Dated this 22nd day of July 2025.
11

12 LOWE GRAHAM JONES^{PLLC}

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